

## CLAIMS

1. A storage device detector system for use with a gripper assembly in a storage library system, comprising:
  - a light source for directing light to an expected position of a storage device;
  - a sensor for detecting light; and
  - at least one controller, wherein the at least one controller and the sensor are configured to detect light reflected from the expected position of the storage device and determine the presence of the storage device based on frequency components from the sensor.
2. The system of claim 1, wherein the sensor includes a linear scanner.
3. The system of claim 1, wherein the sensor includes an area sensor.
4. The system of claim 1, wherein the at least one controller and sensor are further configured to detect a barcode label associated with a storage device based on the detected light.
5. The system of claim 1, wherein if the frequency components are above a predetermined value, determining that a storage device is present.
6. The system of claim 1, wherein if the frequency components are below a predetermined value, determining that a storage device is not present.
7. The system of claim 1, wherein the sensor has a depth of focus located approximately at the expected position of a face of the storage device.

8. The system of claim 7, wherein the depth of focus is within plus or minus 1.0 inch from the expected position of a face of the storage device.
9. The system of claim 1, wherein the light source includes a plurality of light emitting diodes.
10. The system of claim 1, wherein the storage device includes a magnetic tape cartridge.
11. A storage library system having a storage device detector system, comprising:
  - a light source for directing light to the expected position of a storage device;
  - a linear scanner; and
  - at least one controller, wherein the at least one controller and linear scanner are configured to
    - detect light reflected from the expected position of the storage device
    - and determine the presence of a storage device based on frequency components of an output from the linear scanner, and
    - determine the presence of a label associated with the storage device.
12. The system of claim 11, wherein if the frequency components are above a predetermined value, determining that a storage device is present.
13. The system of claim 11, wherein if the frequency components are below a predetermined value, determining that a storage device is not present.

14. The system of claim 11, wherein the linear scanner includes a linear CCD scanner.
15. The system of claim 11, wherein the linear scanner has a depth of focus located approximately at the expected position of the opposing face of the storage device.
16. The system of claim 15, wherein the depth of focus is within plus or minus 1.0 inch from the expected position of the opposing face of the storage device.
17. The system of claim 11, wherein the light source includes a plurality of light emitting diodes.
18. The system of claim 11, wherein the storage devices include magnetic tape cartridges.
19. A method for determining the presence of a storage device in an automated storage library system, comprising:
  - directing light to a storage slot for holding a storage device;
  - detecting light reflected from the storage slot with a sensor; and
  - determining if a storage device is within the storage slot based on frequency components from the sensor.
20. The method of claim 19, wherein the sensor includes a linear scanner.
21. The method of claim 19, wherein the sensor includes an area scanner.

22. The method of claim 19, further including reading a barcode label associated with the storage device with the sensor.
23. The method of claim 19, further including determining that a storage device is present if the frequency components of from the sensor are greater than a predetermined value.
24. The method of claim 19, further including determining that a storage device is not present if the frequency components from the sensor are less than a predetermined value.
25. The method of claim 19, wherein the sensor has a depth of focus at a location approximately where an opposing surface of the storage medium is expected to be located.
26. The method of claim 19, wherein the depth of focus is within plus or minus 1.0 inch from the expected position of the opposing face of the storage device.
27. A method for determining the presence of a storage device in an automated storage library system, comprising:  
directing light to a storage slot for holding a storage device;  
detecting light reflected from the storage slot with a sensor;  
determining if a storage device is located within the storage slot based on a characteristic of the detected light by the sensor; and  
reading a barcode label associated with the storage device based on the light detected by the sensor.

28. The method of claim 27, wherein the characteristic of the detected light includes frequency components of analog data output by a linear scanner.
29. The method of claim 28, further including determining that a storage device is present if the frequency components of the detected image are greater than a predetermined value.
30. The method of claim 28, further including determining that a storage device is not present if the frequency components of the detected image are less than a predetermined value.
31. The method of claim 27, detecting the light with a camera having a depth of focus approximately at the expected position of the opposing surface of the storage device.
32. The method of claim 31, wherein the depth of focus is within plus or minus 1.0 inch from the expected position of the opposing face of the storage device.
33. The method of claim 27, wherein the sensor includes a linear scanner.
34. The method of claim 27, wherein the sensor includes an area scanner.